

CLAIMS:

1 -19. (cancelled)

20. (Currently Amended) A waste gas cleaning system for removing harmful and/or toxic gases from a gas stream, comprising:

a reaction chamber for treating and converting harmful and/or toxic gases for their removal and/or disposal, said reaction chamber having an inlet for receiving a gas stream to be treated and an outlet;

a plasma source coupled to said reaction chamber for providing excitation energy to said reaction chamber for treating harmful and/or toxic gases for their removal and/or disposal and form a plasma therein; and

a liquid jet pump having a suction tube or port connected to said reaction chamber outlet and generating sufficient negative pressure in said reaction chamber for generating a plasma therein, said liquid jet pump being arranged to draw treated harmful and/or toxic gases out of said reaction chamber mixed with liquid from said liquid jet, wherein the liquid jet pump has a constricted region having a lower pressure that is connected via said suction tube or port to said reaction chamber to provide vacuum drawing power or suction on said reaction chamber, wherein the liquid jet pump comprises:

a housing having the suction port that is connected to reaction chamber;

a constricted nozzle disposed within the housing, wherein the constricted nozzle is an end of supply tube that extends through a wall of housing and is configured to eject a horizontally directed liquid jet when the reaction chamber and the liquid pump are vertically aligned; and

a liquid jet drain-off tube having an end opening disposed opposite the constricted nozzle to directly receive and drain the horizontally directed liquid jet ejected from the constricted nozzle.

21. (Previously Presented) A waste gas cleaning system as specified in claim 20 wherein said liquid jet pump has a larger cross-section than the cross-section of said outlet.

22. (Currently Amended) A waste gas cleaning system as specified in claim 20 wherein said liquid jet pump as arranged to generate negative pressure in the range of 30 mbar - 100 mbar.

23. (Previously presented) A waste gas cleaning system as specified in Claim 22, wherein said liquid jet pump is provided with a sorption medium.

24. (Previously presented) A waste gas cleaning system as specified in Claim 23, wherein there is provided a recirculating system including said liquid jet for said sorption medium.

25. (Previously presented) A waste gas cleaning system as specified in Claim 24, wherein said recirculating system is provided with a cooling system.

26 (Previously presented) A waste gas cleaning system as specified in Claim 24 wherein said recirculating system includes a controllable circulation pump for controlling flow rate of the sorption medium.

27. (Previously presented) A waste gas cleaning system as specified in Claim 26, wherein said circulation pump is a compressed air-driven diaphragm pump.

28. (Previously presented) A waste gas cleaning system as specified in any of Claims 20 to 27 wherein there is provided a secondary air inlet to said reaction chamber and wherein said secondary air inlet is controlled to control said negative pressure in said reaction chamber.

29. (Previously presented) A waste gas cleaning system according to any of Claims 20 to 27 wherein there is provided at least one inlet for additional gases to at least one of said reaction chamber and said plasma source.

30. (Previously presented) A waste gas cleaning system according to Claim 29 wherein said at least one inlet for additional gas is connected with a source for one of oxygen and hydrogen.

31 (Previously presented). A waste gas cleaning system according to Claim 29, wherein said at least one inlet for additional gas is connected with a source for water vapor.

32 (Previously presented). A waste gas cleaning system according to any of Claims 20 to 27 wherein said plasma source provides a non-thermal plasma.

33. (Previously presented) A waste gas cleaning system according to any of Claims 20 to 27 wherein said plasma source has an excitation frequency in the microwave range.

34. (Previously presented) A waste gas cleaning system according to Claim 33, wherein said plasma source has an excitation frequency of 2.45 GHz.

35. (Previously presented) A waste gas cleaning system according to Claim 33 wherein said plasma source has a microwave power of up to 6 kW.

36. (Previously presented) A waste gas cleaning system according to any of Claims 20 to 27 wherein a pH electrode is arranged at an outlet at the liquid jet pump and wherein said pH electrode is connected with a control for a metering pump for providing a metered addition of one of alkaline and acid solution into the liquid jet.

37 (Previously Presented). A waste gas cleaning system according to any of Claims 23 to 27 wherein said liquid jet pump is connected with a reservoir for the sorption medium and wherein a suction line connects said reservoir with an exhaust for the cleaned waste gas.

38 (Previously presented). A waste gas cleaning system according to Claim 37, wherein said suction line includes at least one aerosol filter.

39. (Currently amended) A waste gas cleaning system for removing harmful and/or toxic gases from a gas stream, comprising:

a reaction chamber for treating and converting harmful and/or toxic gases for their removal and/or disposal, said reaction chamber having an inlet for receiving a gas stream to be treated and an outlet;

a plasma source coupled to said reaction chamber for providing excitation energy to said reaction chamber for treating harmful and/or toxic gases for their removal and/or disposal, and form a plasma therein;

a liquid jet pump having a suction port connected to said reaction chamber outlet and generating negative pressure in said reaction chamber, wherein said liquid jet pump is arranged

to draw treated harmful and/or toxic gases through said suction port out of said reaction chamber and mix said treated gases with liquid from said liquid jet, and is further arranged to generate a sufficient negative pressure in said reaction chamber for ignition of said plasma and to further arranged to maintain said sufficient negative pressure during plasma treatment of the received gas stream for removing harmful and/or toxic gases therefrom, wherein the liquid jet pump has a constricted region having a lower pressure that is connected via said suction tube or port to said reaction chamber to provide vacuum drawing power or suction on said reaction chamber,

wherein the liquid jet pump comprises:

a housing having the suction port that is connected to the reaction chamber;

a constricted nozzle disposed within the housing, wherein the constricted nozzle is an end of supply tube that extends through a wall of housing and is configured to eject a horizontally directed liquid jet when the reaction chamber and the liquid pump are vertically aligned; and

a liquid jet drain-off tube having an end opening disposed opposite the constricted nozzle to directly receive and drain the horizontally directed liquid jet ejected from the constricted nozzle.